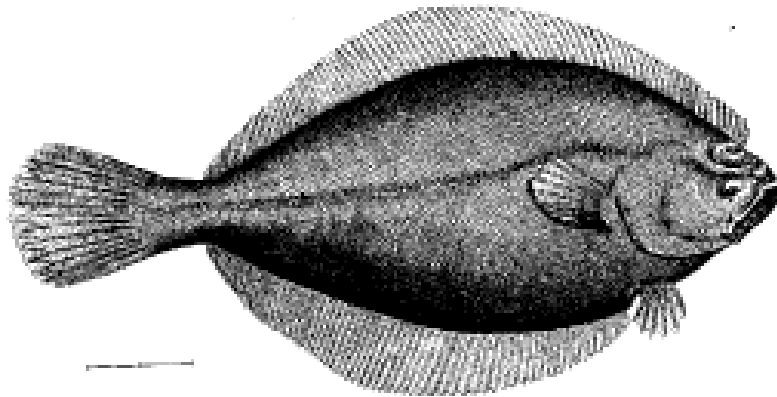


Gulf of Maine–Georges Bank American plaice



Loretta O'Brien

GARM III Models Meeting
February 25-29, 2008
Woods Hole, Ma.

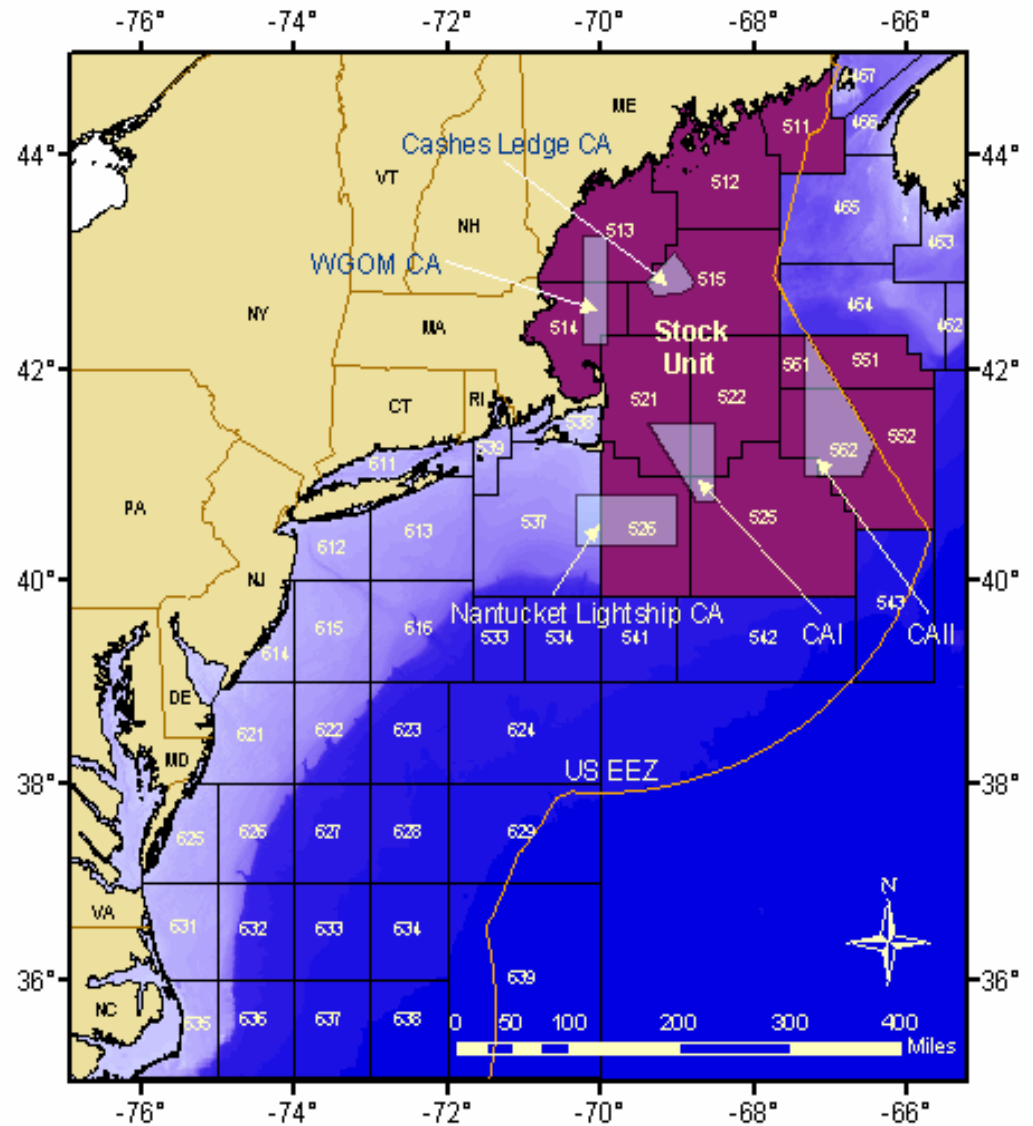
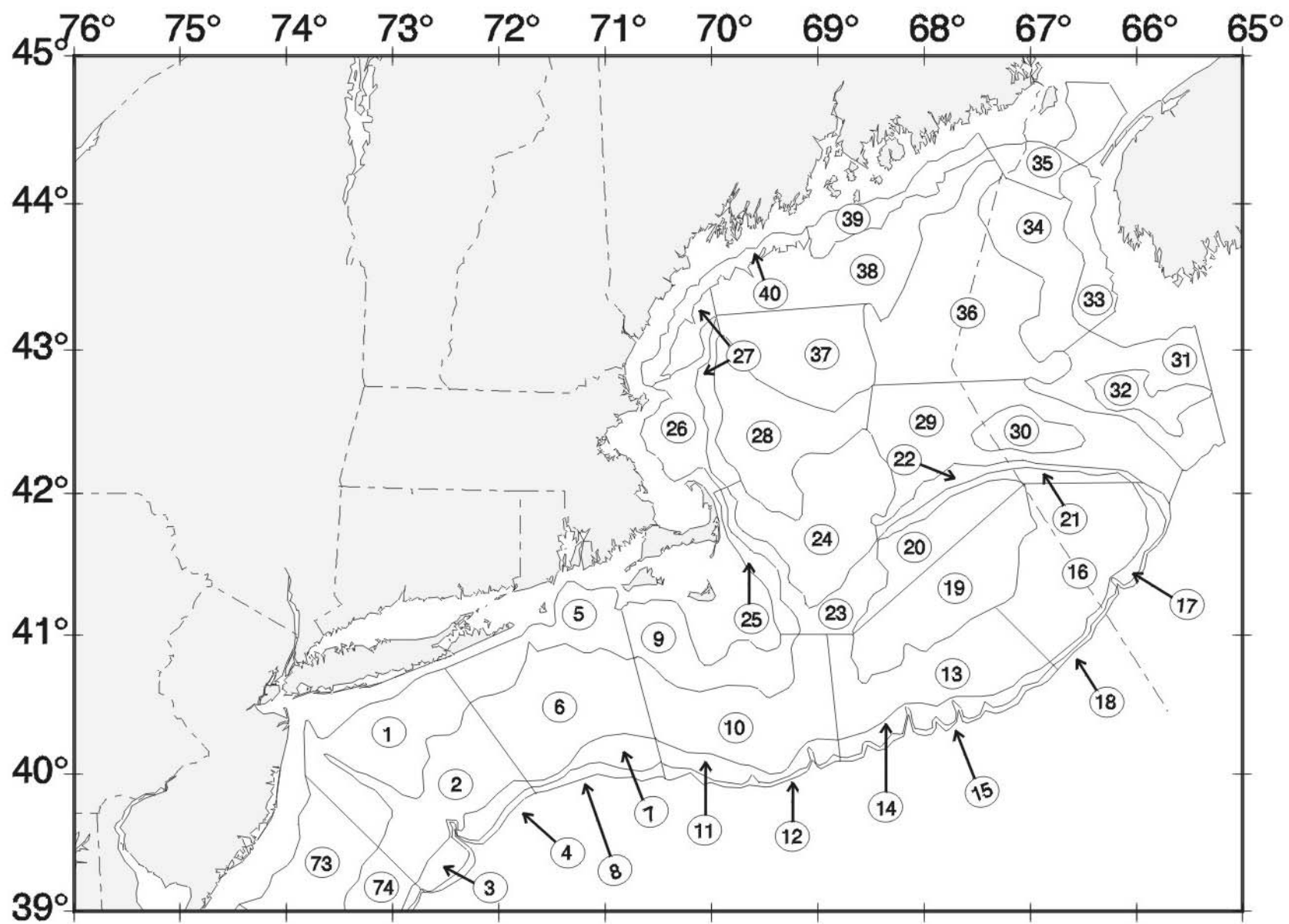
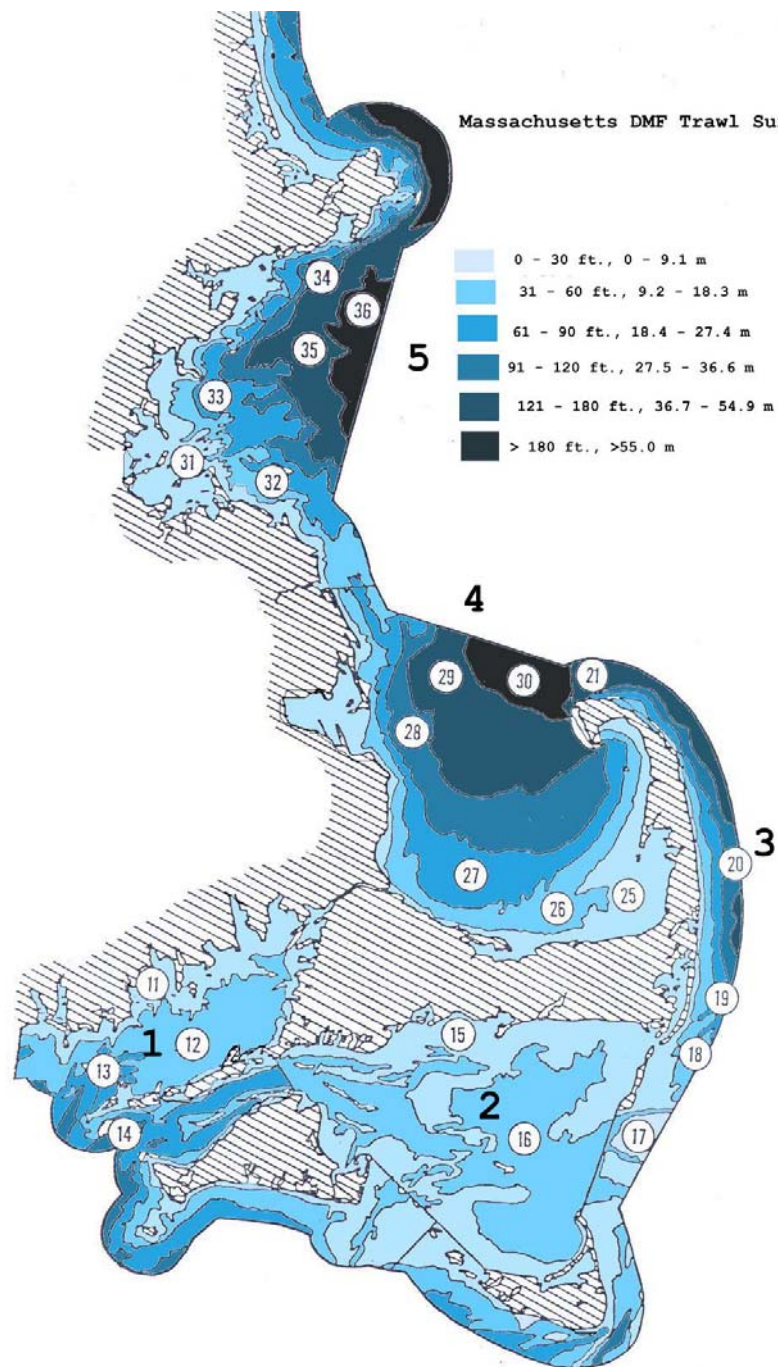


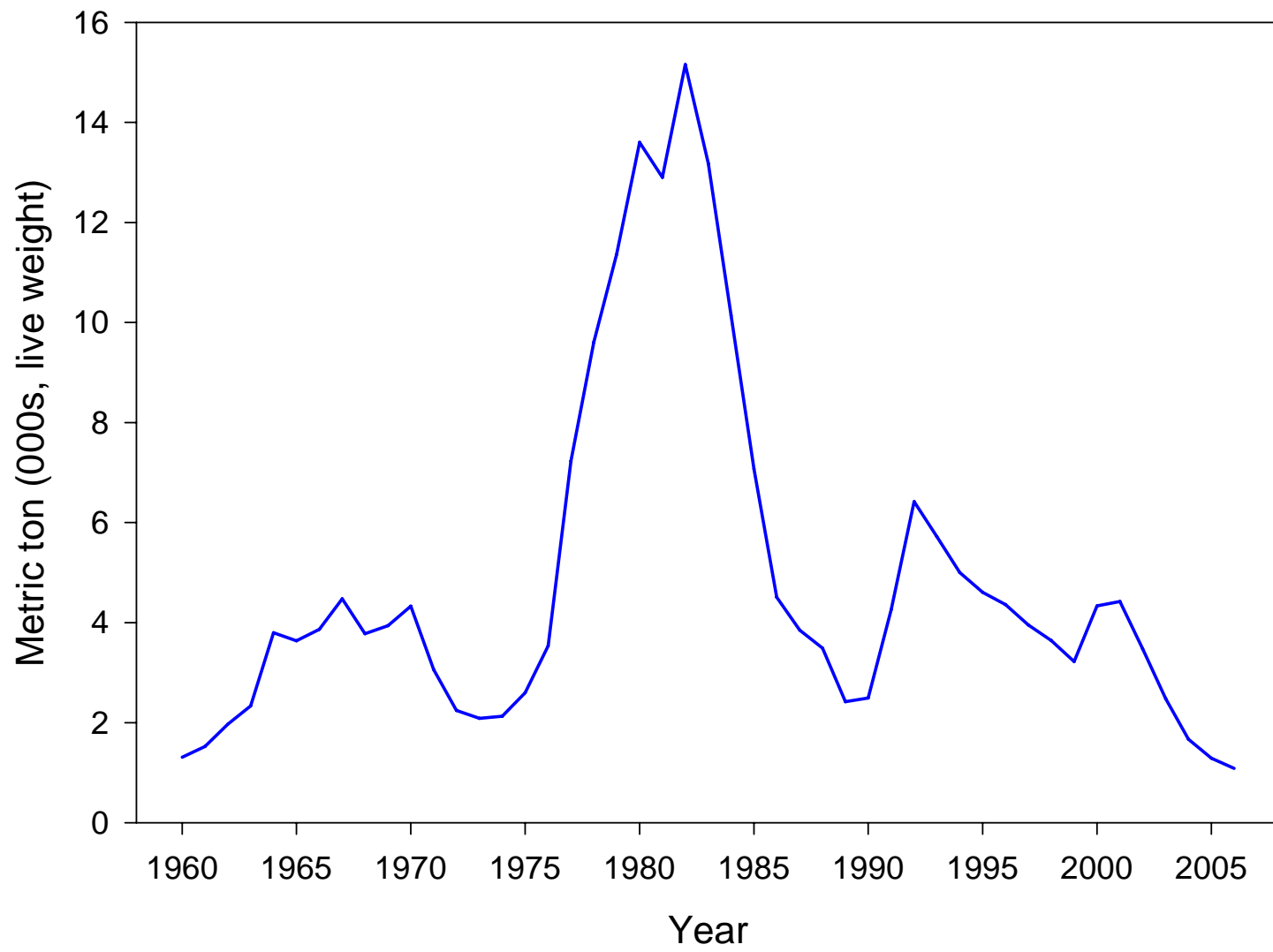
Figure 9.1. Statistical areas used to define the American plaice stock.



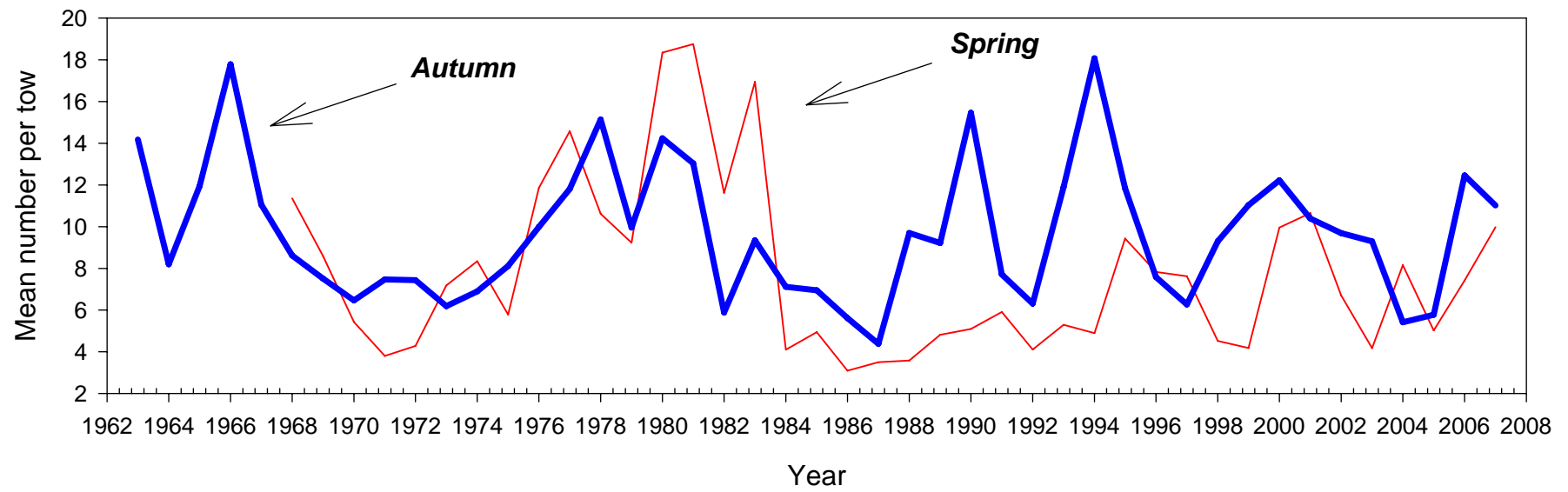
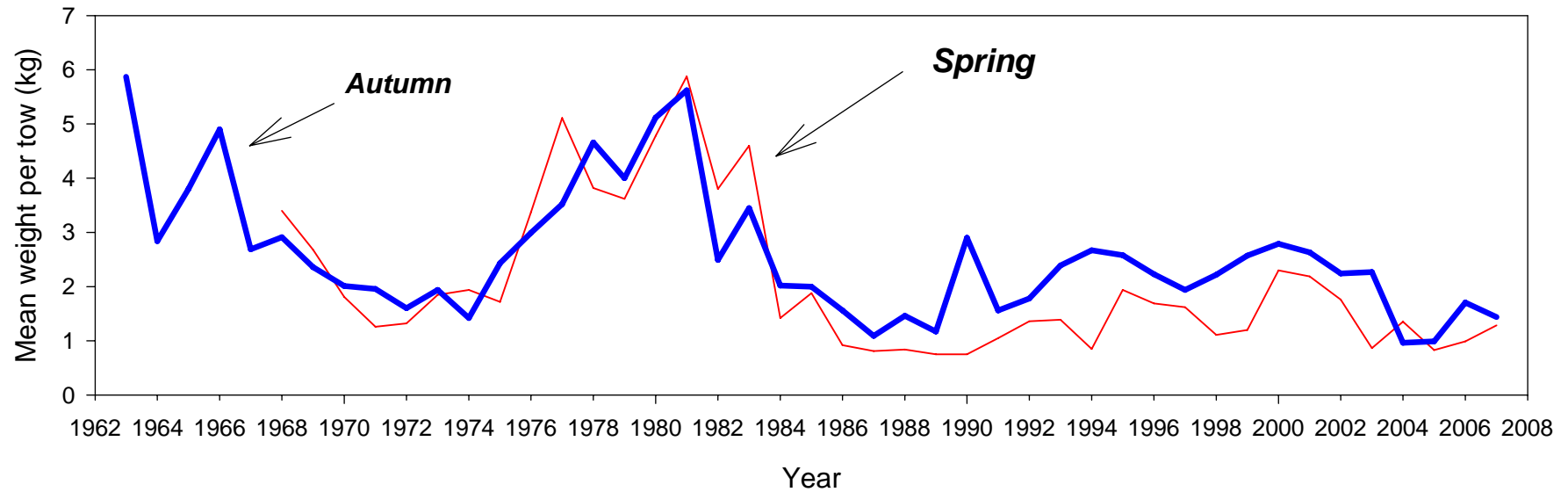
NEFSC Offshore Bottom Trawl Northern Survey Strata

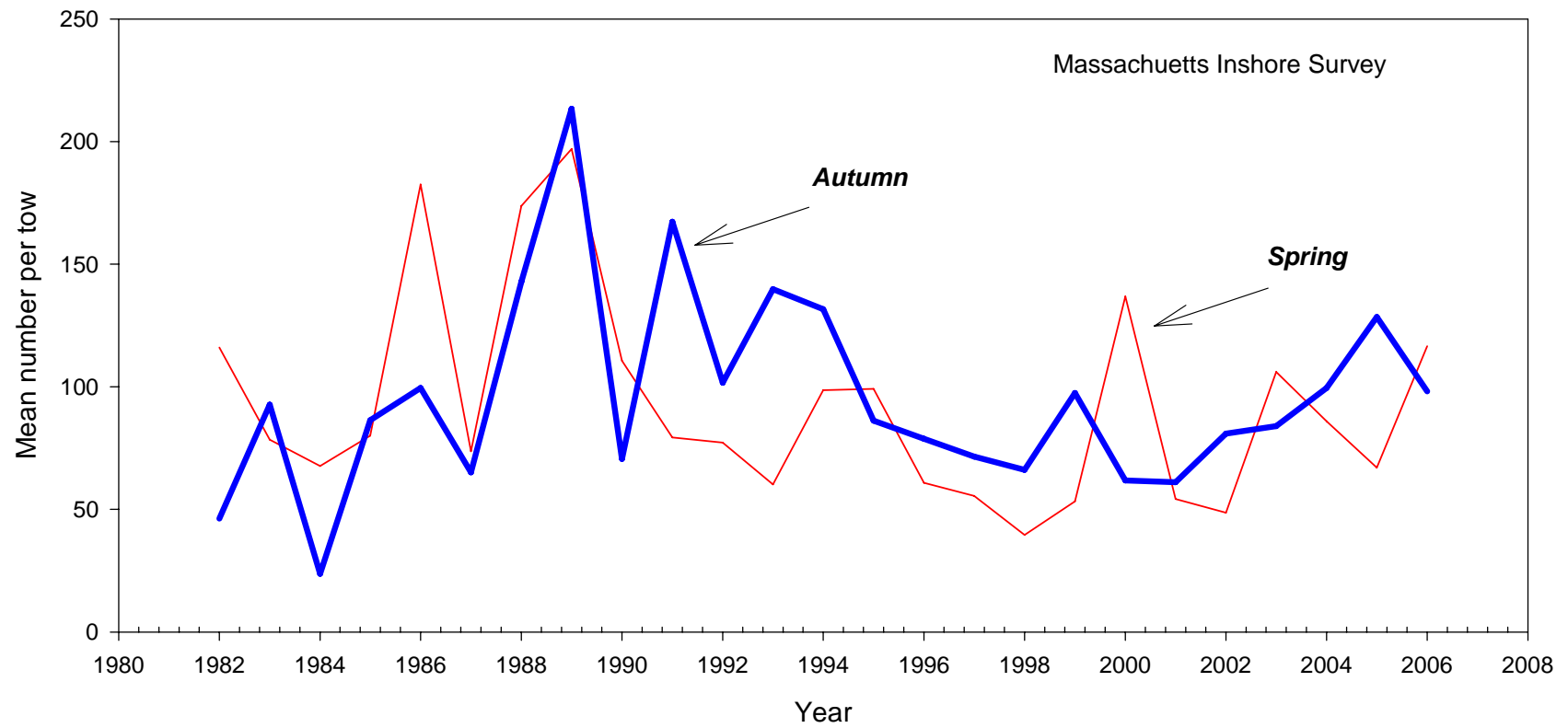
Massachusetts DMF Trawl Survey Strata





NEFSC Surveys





Current Status

GM –GB American plaice are overfished but overfishing is not occurring

Landings: 1,086 mt in 2006

As of GARM II

Landings in 2004: 1,671 mt

F (ages 5-8) = 0.15

SSB= 14,149 mt (49% of the target SSB_{MSY})

Reference Points

Yield and SSB/R

$$F_{0.1} = 0.17$$

$$F_{max} = 0.31$$

$$F_{40\%} = 0.17$$

MSY-based Reference Points

$$MSY = 4,900 \text{ mt}$$

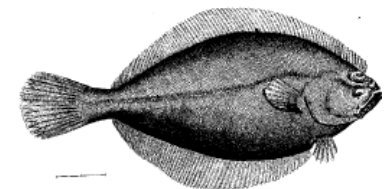
$$SSB_{MSY} = 28,600 \text{ mt}$$

$$F_{MSY} = 0.17$$

The 1998 and 2001 year classes were above average, 2000 lowest in time series, and the 2003 and 2004 well above

Research surveys:

age 2 index – strong 2001 year class



Current Model Approach

Age-structured model : VPA

1st assessed with VPA in 1992

Strengths:

Applicable to available data:

- Landings at age (1982-present)

- Discards at age – shrimp and large mesh

- 4 surveys for calibration -NEFSC spr, and fall, MADMF spr and fall

Performs well:

- Moderate retro ; stronger in F

- Tracks fleet and stock dynamics, trends in SSB, year class strength

Discards are important part of CAA, otherwise expect stronger retro pattern

Weaknesses:

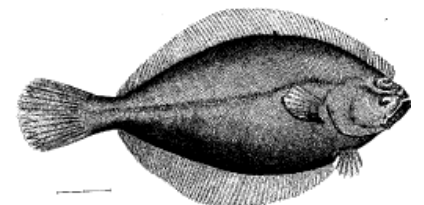
- Assumes no error in CAA (discards likely more variable than landings)

- Do not take into account different growth rate of GM fish vs. GB fish – introduces error into LAA

- Do not account for dimorphic growth

- Does not utilize removals not characterized by age, i.e. historical landings prior to 1982

- Does not incorporate ancillary biological information



Feasibility of changing models

Forward projecting model is a feasible alternative to VPA

- Software and data both available
- Could account for different growth rates between GM , GB
- Could incorporate landings prior to 1982

Proposed Model

VPA

(re-estimate landings by sub-region.....GM and GB)

(FPM could be explored... don't know how VPA will perform with new estimation of discards (vs. survey filter method.)

